National Park Service

National Park Service
U.S. Department of the Interior

Northeast Coastal And Barrier Network
Inventory And Monitoring Program

Standard Operating Procedure

NCBN SALTMARSH MONITORING DATABASE USER'S GUIDE

Version 1: June 10, 2004

DRAFT

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Table of Contents

I. GETTING STARTED

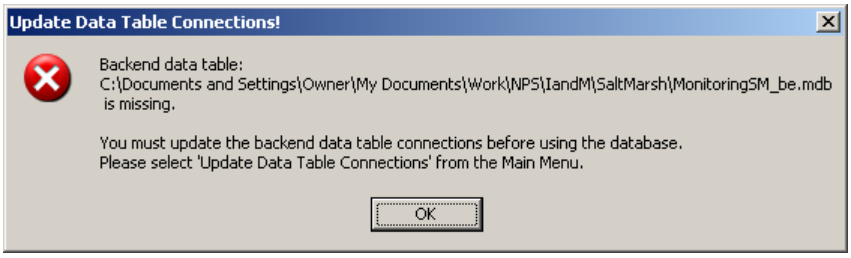
A. Opening the monitoring database

1. Locate the Monitoring database file for your protocol. The file will be titled with the word "Monitoring", an abbreviation of your protocol, and it will have an ".mdb" extension. For example, the saltmarsh monitoring database file is titled MonitoringSM.mdb.

2. Open the monitoring database file.

B. Reconnecting to the back end files

If you have moved the backup files since your previous use of this database, or if you are opening the database for the first time, the backend links may be out of date. If so, a warning screen will appear to remind you to update the links. See Section III Update Data Table Connections., below for more information on updating.



Saving your data with Microsoft Access:

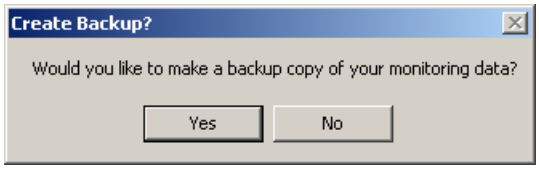
Microsoft Access saves data in a very different fashion than many other programs such as Word or Excel. Usually, you make changes to your file, but those changes are not considered "saved" until you save the entire file, by clicking the Save button or selecting Save from the File menu.

Each time you edit a record in your database, Access automatically saves as you go. This means that when you edit or add information into a box in a form, once you leave that box, Access has saved the new information. If there was a different value previously, the new value is saved over the old value. Access does not require you to save your files at the end of a session, it saves the data during your session as you change or enter it.

For this reason, it is strongly recommended that you backup your data before each session.

C. Backing up your data

1. Each time you open the database, you will be asked if you would like to backup your data before proceeding.



   This is a good idea, particularly if you are adding or editing the data in this session. Making a backup now will allow you to revert in case you make mistakes or delete data.

2. Click yes to backup your data.

3. A Save As dialog box will appear. Use the browse button to select a directory where you will keep your backups. A good idea is to create a separate subdirectory below your current database file that will be just for these backups.

4. The database will automatically create a backup name based on the file name and the date. Including the date will help you later if you need to retrieve specific information from before a particular data entry session. You can change this name if you would like; however, we recommend simply using the default name.

5. If this is the first time you are using the database in this location, table connections to the backend files may be out of date. If so, go to Section C., below. Once the connections are updated, you can backup your data using the instructions in Section D.

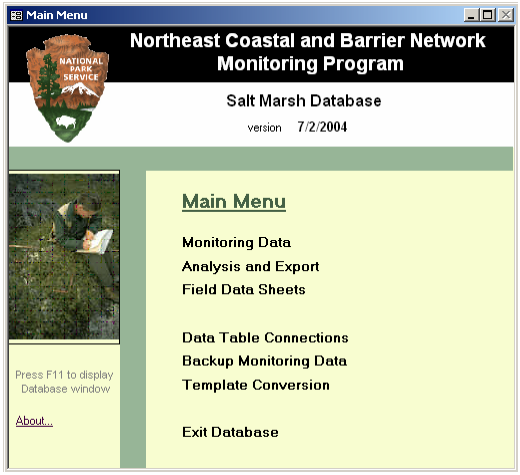
II. MAIN MENU

A. Main Menu window

1. The title of this window shows you the network, the database protocol, and the version date of the database front-end.

2. At any time, you can press F11 to get the database window, which provides you direct access to all of the tables, forms, reports and codes incorporated in the database. These are all available through the menu options below.

3. The About…link in the lower left corner of the Main Menu gives you information on the database files, when they were last updated and by whom.



B. Main Menu Option

1. Monitoring Data
   This menu option is for entering, editing and viewing the monitoring data. The data stored with this database and its backend files include the date and location of monitoring, the monitoring data collected, as well as lookup tables of all monitoring locations and sites, personnel, species, and habitat.

2. Analysis and Export
   Preview and print prebuilt analyses for annual reports and data review, and export data to Excel for further analysis outside of Access.

3. Field Data Sheets
   Preview and print copies of the forms used to record monitoring data in the field.

4. Data Table Connections
   This database is actually made up of 3 different database files. For these to work together, the front-end (the database file you opened) must be able to locate the two backend files. If you have just put this data onto your machine, have changed drive letters or have moved the files for any other reason, the option updates the connections to the new locations.

5. Backup Monitoring Data

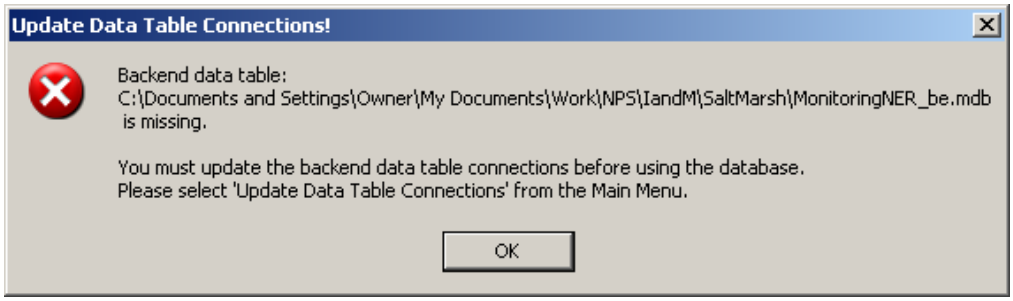
Back up your data, just as you could when you first opened the database (see Section I.C. above).

6. Template Conversion
   These tools are for converting the database from a salt marsh database to a database that can be used for other monitoring protocols and networks. This option may or may not appear on the main menu.

7. Exit Database
   Close the database and exit Access until another session.

III. UPDATE DATA TABLE CONNECTIONS

If this is the first time you have used the database in its current location on your computer, or if you have moved the database file(s), you will need to update the links between the front-end database containing the forms and the back-end databases containing the data. You may have gotten a warning when you first opened the database:



Structure of the Monitoring Database Files:

The monitoring databases are comprised of three smaller databases.

The front-end database is the file that you opened to start your session. For instance, MonitoringSM.mdb. There are two different backend database files. The first contains all of the monitoring data for your protocol and is called MonitoringSM_be.mdb. The second contains data tables in common between protocols and networks, such as the list of species and parks, and is named for your region or network. The Northeast Region file is called MonitoringNER_be.mdb.

The database is split into three parts to facilitate updates and data sharing. The Network Data Manager is responsible for creating and maintaining the database front-end: the table structures, the forms, the menus, etc. It will be up to the researchers and contractors, however, to enter and update the monitoring data itself. By splitting these apart, the Data Manager can improve or update the front-end, and send that out to the researchers to replace the previous version without affecting the monitoring data. If the front-end and the monitoring data were in the same database, each time a change occurred in one data file, it would have to be sent immediately to replace the other.

Similarly, the backend common tables database can be updated at the regional or network level, e.g., by adding new species, and then it can be sent out to all of the researchers without affecting either the database front-end or the monitoring data. In fact it can be sent to researchers using completely different protocols and front-ends.

A. Updating your connections

1. Open the Update Links to Backend Tables form, by clicking Data Table Connections on the Main Menu.

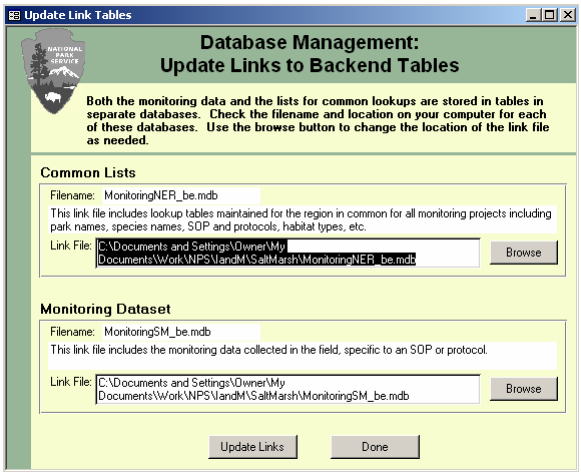
   There are two back-end database files to connect to: the common lookup tables and your monitoring data.

2. First, browse to the Common Lists database file, by clicking Browse to locate the appropriate file on your computer. In this example, locate the file called MonitoringNER_be.mdb, for the Northeast region.

3. Repeat this for the second database, for the Monitoring Dataset file, called MonitoringSM_be.mdb.

4. Click *Update Links* to update the connections. A popup window will tell you when the table connections are updated.

5. When you have finished, click *Done* to continue with your work.



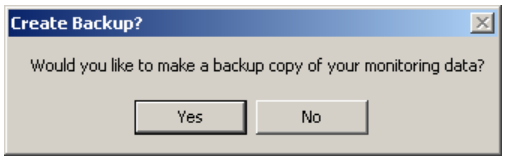
IV. BACKING UP YOUR MONITORING DATA

As described in Section III Update Table Connections above, the monitoring database is made up of three database files: the front-end, which includes the forms, a back-end file with lists common across monitoring projects (e.g., species, park codes), and the monitoring data specific to the particular protocol, in this case salt marsh monitoring.

Researchers who are responsible for collecting monitoring field data are also responsible for entering that data into the database. All of the field data is stored together in one file, e.g., MonitoringSM_be.mdb. As data are entered, Access saves the data to the database file. Unlike other programs like Excel where data are not stored until a user clicks a Save button, Access saves data essentially as you enter it. Therefore, it is helpful to make backups in case data errors are inadvertently saved. Backups are also important in case of disk errors, viruses, etc.

A. Saving your data

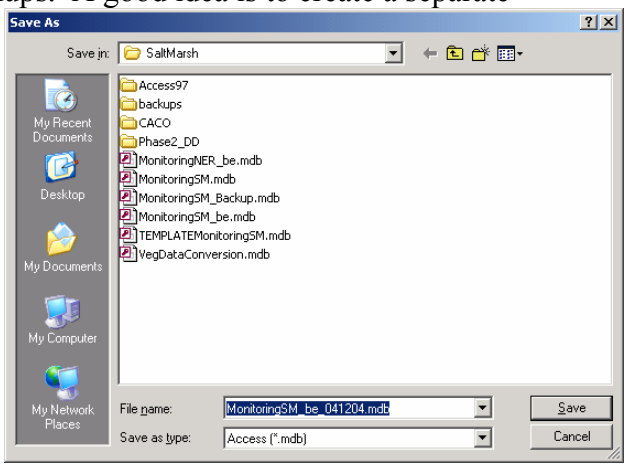
1. Each time you open the database, a small dialog box will ask if you would like to backup your data before proceeding.



   If you already have the database open, select *Backup Monitoring Data* from the *Main Menu*, and the same dialog box will appear.

2. Click *Yes* on the dialog box to backup your data. Click *No* if you do not want to back up your data.

3. A Save As dialog box will appear. Use the browse button to select a directory where you will keep your backups. A good idea is to create a separate subdirectory below your current database file or on a network drive that will be just for these backups.



4. The database will automatically create a backup file name based on the monitoring data file name and the date. Including the date will help you later if you need to retrieve information from a previous data entry session. You can change this name if you like; however, we recommend simply using the default name.

5. Click *Save* to create the backup, or *Cancel* to quit.

6. If you try to create a backup with the same name as an existing file, a prompt will ask if you would like to overwrite the existing file or select a new file name.

7. A message box will tell you when the data have been backed up. If the database has been moved since your last session, you may receive an error that the data could not be found. Update the connections to your monitoring data (see Section III. above), then try again.

V. BASICS OF DATA ENTRY IN ACCESS

A. Basics of Access data entry

1. Any time you enter data and move to a new record or close the form, Access automatically saves your data. The SOP instructs you to click *Save* before leaving a record, to be clear about the data and when it is saved.

2. If you are entering data in a field and make a mistake and want to return the field to its previous value, hit the *Esc* key to clear that field. This will only work if you have not left that field, but are still actively editing it. Once you leave that field, the data is saved with the record. You can return the entire record to its previous value if you have not yet saved it.

3. If you are entering data and wish clear the record and start again,, hit *Esc* twice to clear all of the fields. If you move to another record, close the form, or click *Done,* the record has been saved and you must reenter the original data if you have edited the data incorrectly.

4. If you want to delete the new record and any data you have already entered into it, select the record and hit the *Delete* button in the upper right hand are of the form, or use Delete Record from the Edit menu of the Access toolbar.

5. Most forms include the Access record navigation buttons at the bottom. In order these buttons are:

   a) go to the first record

   b) go back one record

   c) record number

   d) go to the next record

   e) go to the last record

   f) Add a new record

   g) the total number of records in the table

VI. ENTERING MONITORING SITES AND LOCATIONS

A. Defining Sites and Locations

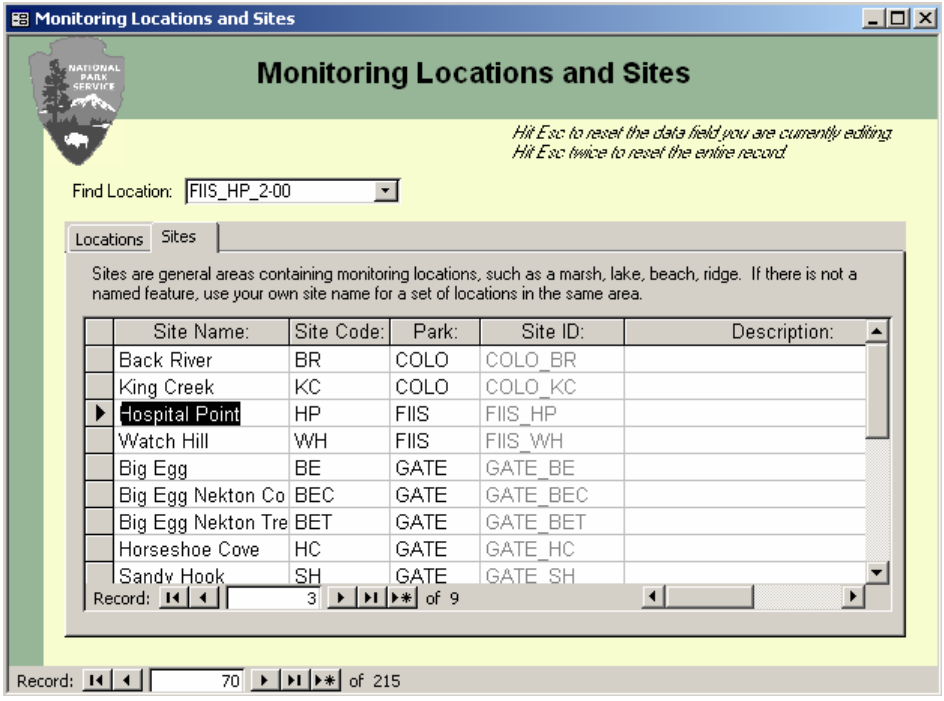
A monitoring site is a generalized area. For the salt marsh protocol, it is a salt marsh. For other protocols it may be a particular stream, forest, pond, etc. A site will generally be a known area, something named that park staff would use as a reference or that would appear on a map.

A monitoring location is a particular point within a site. For the salt marsh protocol, it would be the specific points within a marsh that measurements were taken. Each location should have a coordinate pair defining it, a GPS point.

Sites and Locations as well as Events have unique identifiers. The SiteID includes the park code where the site is located, and a short abbreviation for the site. So, COLO_BR would be the Back River marsh site in Colonial National Park. Locations are a point within a site. The LocationID is a SiteID followed by a point identifier. COLO_BR_P12 would be the point location P12 within the COLO_BR site.

B. Adding a new site

1. Bring up the *Monitoring Locations and Sites* form by either clicking *Add a New Location* from your monitoring data forms, or by clicking on *Locations and Sites* on the *Monitoring Data* Menu, then selecting *Sites* on the subsequent form.



2. Click on the *Sites* tab.

3. Scroll to the bottom of the sites list, until you see a blank line ready for your new site.

4. Enter the name of the site into the blank line. This is a common name, one that locals would use or that you would see on a map.

5. Enter a short abbreviation or code for the site. This is a code you devise. Using a two-letter abbreviation is a good idea, but be careful that each site has a unique code. Blue River and Back River for instance, should not both have BR as their code.

6. Select the park where the site is to be found.

7. If you are entering data in a field and make a mistake or want to leave that field blank, hit the *Esc* key to clear that field.

8. If you are entering data and wish to clear the record, hit *Esc* twice to clear all of the fields. If you move to another record or click *Done* this empty record will be erased. This does not work once a record has been saved, either by moving to another record, clicking *Done*, or closing the form.

9. The database will automatically create the *SiteID* for you.

10. You can enter in any descriptive information about the site that you find helpful. The description is not required.

C. Editing previously entered monitoring sites

1. Bring up the *Monitoring Locations and Sites* form by either clicking *Add a New Location* from your monitoring data forms, or by clicking on *Locations and Sites* on the *Monitoring Data* Menu, then selecting *Sites* on the subsequent form. Select the Sites tab.

2. Scroll to the site you would like to edit. They are alphabetical by site name.

3. Select the data you would like to edit, and make the appropriate changes.

4. When you have finished editing your site parameters, click *Done*.

D. Deleting a monitoring site

Note: There is NO undo for this operation. Once you delete a record, it is gone, permanently!

1. On the *Sites* tab, scroll to the site you would like to edit. They are alphabetical by site name.

2. Highlight the entire row of the record you would like to delete.

3. Check that this site is in fact the event that you want to delete.

4. Select *Delete Record* from the *Edit* menu at the top of the Access window.

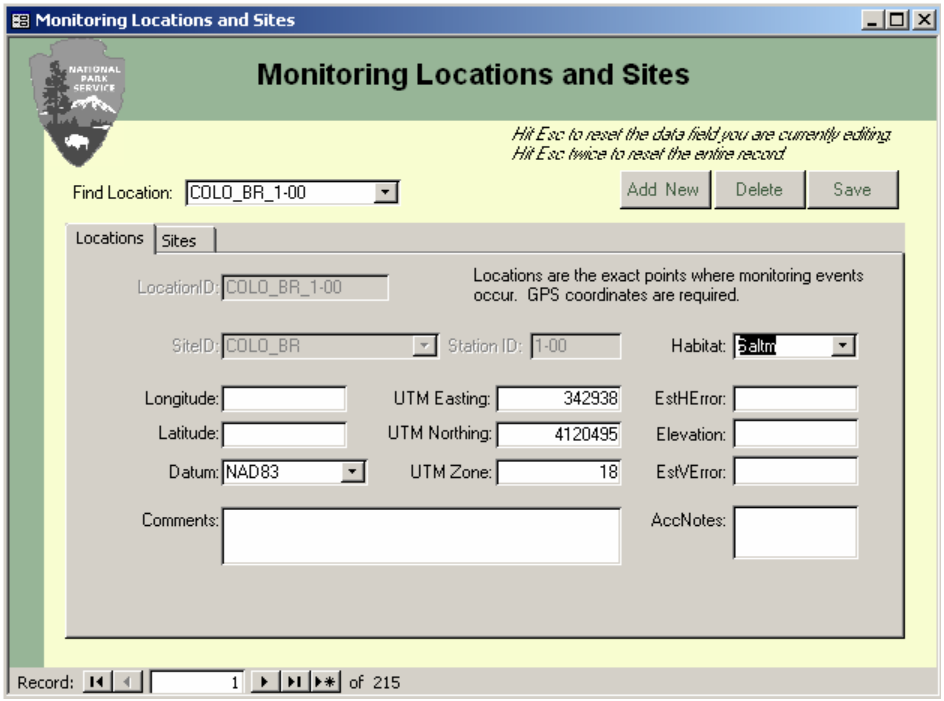
5. A dialog box will pop up to protect you from accidental deletes. Carefully check the site one last time. If this is the record you would like to delete, click *OK*. If not, start again and find the record you would like to delete.

6. Click *Done* when you have deleted the record, or you can proceed to add a new event or editing an existing event, or repeat these steps to delete another record.

E. Adding a new location

1. Bring up the *Monitoring Locations and Sites* form by either clicking *Add a New Location* from your monitoring data forms, or by clicking on *Locations and Sites* on the *Monitoring Data* menu, then selecting *Sites* on the subsequent form. Select the *Locations* tab.

2. Click *Add New* at the top of the *Monitoring Locations and Sites* form.



3. Select the site containing the new location, by using the drop down list of SiteIDs. If the site is not already in the database, switch to the sites tab and enter the site in now.

4. Enter a station identifier. This is a short code for the point in the site or along the transect. For instance stations can be number 1, 2, 3… or they can be alphanumeric such as P1, P2...These stations should be unique to each site.

5. When you have entered the SiteID and the StationID, the database will automatically create a new LocationID for you.

6. Select a Habitat type from the drop-down list. If the habitat type appropriate for this location does not exist, refer to you can add new habitats by selecting Update Lists and Background Data from the Main Menu, then selecting Habitats.

7. Enter the Latitude and Longitude or the UTM Easting (X) and Northing (Y) and UTM Zone. You can add both types of coordinates or only one.

8. Enter the datum used for these coordinates, both types of coordinates (Latitude / Longitude and UTM) will require the datum to be recorded.

9. If you have used a GPS to collect your coordinates, enter the estimated horizontal and vertical errors (EstHError) for you location and any accuracy notes (AccNotes).

10. If your GPS reads elevation as well, enter that along with the estimated vertical error (EstVError) for the reading.

11. Finally, add any comments you feel would help define or understand this location. Example comments might include landmarks that are useful in finding the location, physical parameters of the location, its position along a transect, etc.

F. Editing previously entered monitoring locations

1. Bring up the *Monitoring Locations and Sites* form by either clicking *Add a New Location* from your monitoring data forms, or by clicking on *Locations and Sites* on the *Monitoring Data* menu, then selecting the *Locations* tab.

2. Use the Find Location drop-down list of all existing sites, by location codes to move to the location you would like to edit.

3. Select the data you would like to edit, and make the appropriate changes.

4. Click the *Save* button in the top right corner of the form.

5. When you have finished editing your location, you can select a new location to edit, or click *Done*.

G. Deleting a monitoring location

Note: There is NO undo for this operation. Once you delete a record, it is gone, permanently!

1. Bring up the *Monitoring Locations and Sites* form by either clicking *Add a New Location* from your monitoring data forms, or by clicking *Locations and Sites* on the *Monitoring Data* menu, then selecting the *Locations* tab.

2. Use the *Find Location* drop-down list of all existing sites, by location codes to move to the location you would like to edit.

3. Place your cursor in the site name textbox.

4. Check that this site is in fact the event that you want to delete.

5. Click *Delete* button at the top right of the form.

6. A dialog box will pop up to protect you from accidental deletes. Carefully check the location one last time. If this is the record you would like to delete, click *OK*. If not, click *Cancel* to start again and find the record you would like to delete.

7. Click *Done* when you have deleted the record, or you can proceed to add a new event or editing an existing event, or repeat these steps to delete another record.

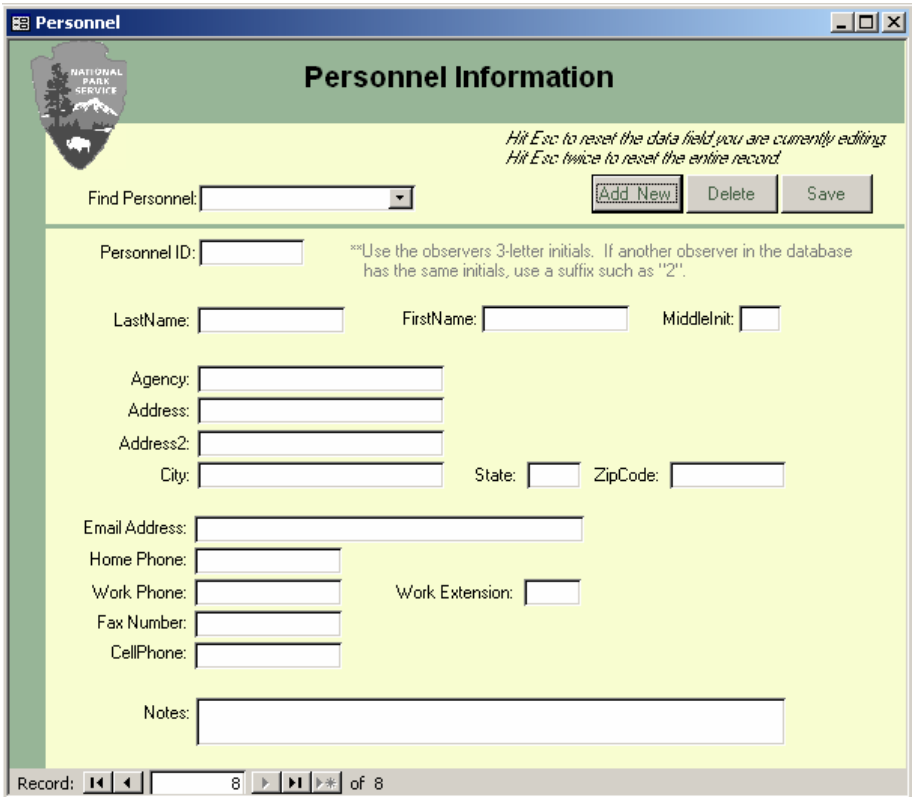
VII. ENTERING PERSONNEL INFORMATION

The salt marsh database includes tables for storing information not only about the salt marshes, but about the process of collecting the monitoring data. Each event includes information about where and when the monitoring data were collected as well as who collected the monitoring data in the field and who entered that data into the database. Information on these individuals are incorporated in the database, so that in the future if there are questions to be resolved about the monitoring events, data or data entry, researchers can go back to those who were there.

When entering data about either field observers or data entry personnel, the Events form includes drop-down lists of personnel. If an individual does not show up in the drop-down list, he or she must be added to the list of personnel.

A. Adding a new individual

1. Select *Monitoring Data* from the *Main Menu*. Click on *Personnel* to bring up the *Personnel Information* form.



2. Click the *Add New* button in the top right of the form.

3. Enter the three initials of the new person for the Personnel ID. If for any reason they do not have three initials, you can use two or four letters as well; however, three is the standard and should be used if possible. If that ID already exists, you may need to adapt the letters to create a unique

PersonnelID, for instance, you might have JAD already for John A. Doe and use JAD2 or JADe for Jane A. Deer.

4. Step through the form's fields, entering:

   a) the person's name: last, first, middle initial,

   b) the agency, university, company or other entity with whom they are employed.

   c) their work address,

   d) their email address,

   e) their phone numbers: home, work, cell, and fax. Home phone numbers are important for those individuals who work from their homes, or for students who do not have a consistent work phone number. For government employees and university faculty and staff with reliable work phone numbers, there is no need to enter a home phone number. Similarly, you need only enter a cell phone number that is being used by the individual for the work purposes.

   f) use the Notes field for any other information that may be relevant. For instance, if this is a student or summer intern who may only participate for one year, you might note that status here.

5. When you have completed adding the new observer, you can click *Done* to return to the *Monitoring Data* menu, or you can click on the *New Record* button again to add another new record.

B. Editing previously entered personnel information

1. Select *Personnel* from the *Monitoring Data* menu.

2. Locate the record you want to edit. You can do this by selecting the individual's initials in the *Find Personnel* drop-down list. You can also use the navigation buttons on the bottom of the form to step through the records.

3. Change the incorrect data values by reentering the monitoring event, species, and whether the specimen was alive or dead, or the percent cover value. Refer to *Adding a new individual* above for descriptions of the form and data to be entered.

4. When you have made the changes necessary, click *Save* in the upper right of the form.

5. You may now either select another record to change or click *Done*.

C. Deleting personnel

Note: There is NO undo for this operation. Once you delete a record, it is gone, permanently! Do not delete any personnel that have been involved with the monitoring program in the past. Only delete mistaken personnel.

1. Select *Personnel* from the *Monitoring Data* menu.

2. Locate the record you want to delete. You can do this by selecting the individual's initials in the Find Personnel drop-down list. You can also use the navigation buttons on the bottom of the form to step through the records.

3. Check that this individual is in fact the event that you want to delete.

4. Place your cursor in the PersonnelID box of the record you would like to delete.

5. Click the *Delete* button in the top right of the form.

6. A dialog popup will ask you if you really want to delete this record. Remember, once you delete a record, there is no undo, you will have to reenter the data from scratch. If you would like to continue with the delete, click *Yes*¸ otherwise, click *Cancel*.

   If this person has already been entered into a monitoring event as someone who collected field data or who performed data entry, Access will not allow you to delete the record. To delete the record, you would need to find the record or records of events that this individual was involved with, change the references there to a different observer, then return and delete the reference here. This should only be done if in fact the observer information included in the events form are truly incorrect.

7. Once the record is deleted, the form will display the next observer in the table.

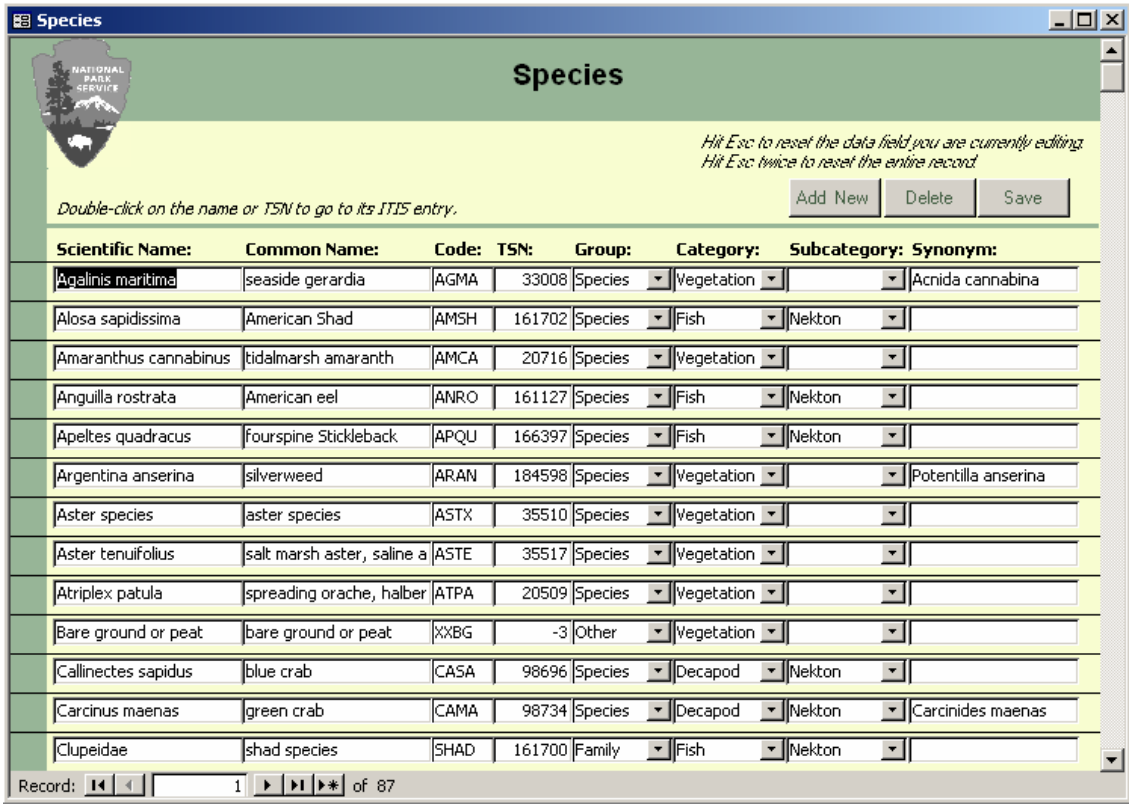
8. Click *Done* when you have deleted the record, or repeat these steps to delete another record.

VIII. ENTERING SPECIES INFORMATION

The Common Lists database stores information about species encountered in the field. The species names are referenced to ITIS the International Taxonomic Information System. This system provides a unique taxonomic serial number, TSN, to each species, genus, family, etc. ITIS tracks species that may have more than one name or synonym. The species list uses only the primary accepted name for each species. You may store information about synonyms, but they are not to be used as the species name. The TSN is the index used by the database to link monitoring data to monitored species. You must look up a species' TSN before you can add a species or genus to the list.

A. Adding a new species

1. Select *Monitoring Data* from the *Main Menu*. Click on *Species* to bring up the *Species* form.



Scientific Name:	Common Name:	Code:	TSN:	Group:	Category:	Subcategory:	Synonym:
Agalinis maritima	seaside gerardia	AGMA	33008	Species	Vegetation		Acnida cannabina
Alosa sapidissima	American Shad	AMSH	161702	Species	Fish	Nekton	
Amaranthus cannabinus	tidalmarsh amaranth	AMCA	20716	Species	Vegetation		
Anguilla rostrata	American eel	ANRO	161127	Species	Fish	Nekton	
Apeltes quadracus	fourspine Stickleback	APQU	166397	Species	Fish	Nekton	
Argentina anserina	silverweed	ARAN	184598	Species	Vegetation		Potentilla anserina
Aster species	aster species	ASTX	35510	Species	Vegetation		
Aster tenuifolius	salt marsh aster, saline a	ASTE	35517	Species	Vegetation		
Atriplex patula	spreading orache, halber	ATPA	20509	Species	Vegetation		
Bare ground or peat	bare ground or peat	XXBG	-3	Other	Vegetation		
Callinectes sapidus	blue crab	CASA	98696	Species	Decapod	Nekton	
Carcinus maenas	green crab	CAMA	98734	Species	Decapod	Nekton	Carcinides maenas
Clupeidae	shad species	SHAD	161700	Family	Fish	Nekton	

2. Click the *Add New* button in the top right of the form.

3. Enter the Scientific Name of the species.

4. Double-click on the Scientific Name you just entered to look up the species in ITIS. If this does not work, then go to www.itis.gov and follow the directions there.

5. Ensure that the name you entered is the primary name, and not a synonym. If the name is a synonym, then enter the primary name.

6. Enter the Common Name for this species.

7. If you are using a species code in common with other researchers, enter the appropriate code. Otherwise you can enter the first two letters of the genus followed by the first two letters of the species.

8. Enter the TSN from ITIS.

9. Enter the group level – is this a species, genus, family or other level of organism.

10. Select a category or add your own. The category is used to group the species into smaller lists. For instance, the vegetation monitoring form only includes vegetation species. Fish and mammals are filtered out.

11. Select a subcategory. This is used in other areas for filtering as well. For instance, counts of decapods vs. fish vs. nekton use the subcategory to sort the data for analysis.

12. Add any synonyms it may be helpful for you to store. If there is a common synonym, it may be very useful to researchers to help them find the primary species name.

13. When you have completed adding the new species, click *Done* to return to the *Monitoring Data* menu, or click the *New Record* button again to add another new record.

B. Editing previously entered species information

1. Select *Species* from the *Monitoring Data* menu.

2. Locate the record you want to edit by scrolling through the records. They are in alphabetical order by Scientific Name.

3. Change the incorrect data values.

4. When you have made the changes necessary, click *Save* in the upper right of the form.

5. You may now either select another record to change or click *Done*.

C. Deleting species

Note: There is NO undo for this operation. Once you delete a record, it is gone, permanently! Do not delete any species that have already been found and entered into the monitoring data. If you need to change a species because you have used a synonym instead, contact your database administrator to correct the monitoring data before deleting the species.

1. Select *Species* from the *Monitoring Data* menu.

2. Locate the record you want to edit by scrolling through the records. They are in alphabetical order by Scientific Name

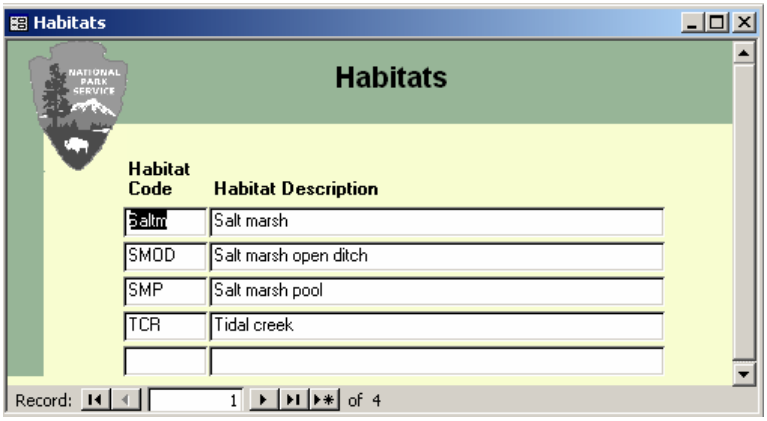
3. Place your cursor in the Scientific Name box of the record you would like to delete.

4. Click *Delete* on the upper right corner of the form.

5. A dialog popup will ask you if you really want to delete this record. Remember, once you delete a record, there is no undo, you will have to reenter the data from scratch. If you would like to continue with the delete, click *Yes*¸ otherwise, click *Cancel*.

6. Click *Done* when you have deleted the record, or repeat these steps to delete another record.

IX. ENTERING HABITAT TYPES



The Common Lists database also includes a list of habitat types. These are used in describing locations and sites.

A. Adding a habitat type

1. Select *Monitoring Data* from the *Main Menu*. Click on *Habitats* to bring up the *Habitats* form.
2. Scroll down until you see a blank record.
3. Enter a short code for your habitat type. These codes are of your own choosing, but be sure that you do not try to use a code twice.
4. Enter a short description of the habitat. This description is essentially the same as a long name.
5. Close the window when you have entered the data, or go to the next new record to add more habitats.

B. Editing previously entered habitats information

1. Select *Habitats* from the *Monitoring Data* menu.
2. Locate the record you want to edit by scrolling through the records. They are in alphabetical order by Habitat Code.
3. Change the incorrect data.
4. When you have made the changes necessary, close the form or scroll to another record to edit.

C. Deleting habitats

Note: There is NO undo for this operation. Once you delete a record, it is gone, permanently! Do not delete any habitats or habitat codes that have already been entered into the monitoring data. If you need to change a habitat or code contact your database administrator to correct the monitoring data before deleting the code or habitat.

1. Select *Habitats* from the *Monitoring Data* menu.

2. Locate the record you want to edit by scrolling through the records. They are in alphabetical order by Habitat Code.

3. Place your cursor in the Habitat Code box of the record you would like to delete.

4. Select *Delete* from the *Edit* menu of the Access menu bar.

5. A dialog popup will ask you if you really want to delete this record. Remember, once you delete a record, there is no undo, you will have to reenter the data from scratch. If you would like to continue with the delete, click *Yes*¸ otherwise, click *Cancel*.

6. Click *Done* when you have deleted the record, or repeat these steps to delete another record.

X. ENTERING SALTMARSH MONITORING DATA

A. Entering the Monitoring Event

A monitoring event is one field visit to a specific point where measurements were taken. In the case of the NCBN salt marsh protocol, an event is a visit to a particular point on a salt marsh where nekton or vegetation were sampled. If nekton were sampled from several locations on a single marsh, samples collected in different locations are considered to be from distinct events. If the same location is sampled more than once in a season, each visit is considered a distinct event. If nekton are sampled at a particular time and location, and water chemistry is sampled concurrently as part of the same protocol, these are considered the same event.

The database includes a unique identifier for each event, the EventID. This ID number is a concatenation of the place and date of the event. The first four letters of the EventID are the park code, this is followed by a shorthand for the location, the protocol abbreviation and finally the date. For instance: COLO_BR_P12_SM_08/06/2003 occurred in Colonial National Park on the Back River marsh, at sampling point P12, using the salt marsh protocol on August 6th, 2003

Some protocols may require sampling the same location at different times on the same day. For these protocols, the EventID will include location, protocol, date and start time of the event.

1. From the *Main Menu* select *Monitoring Data*.

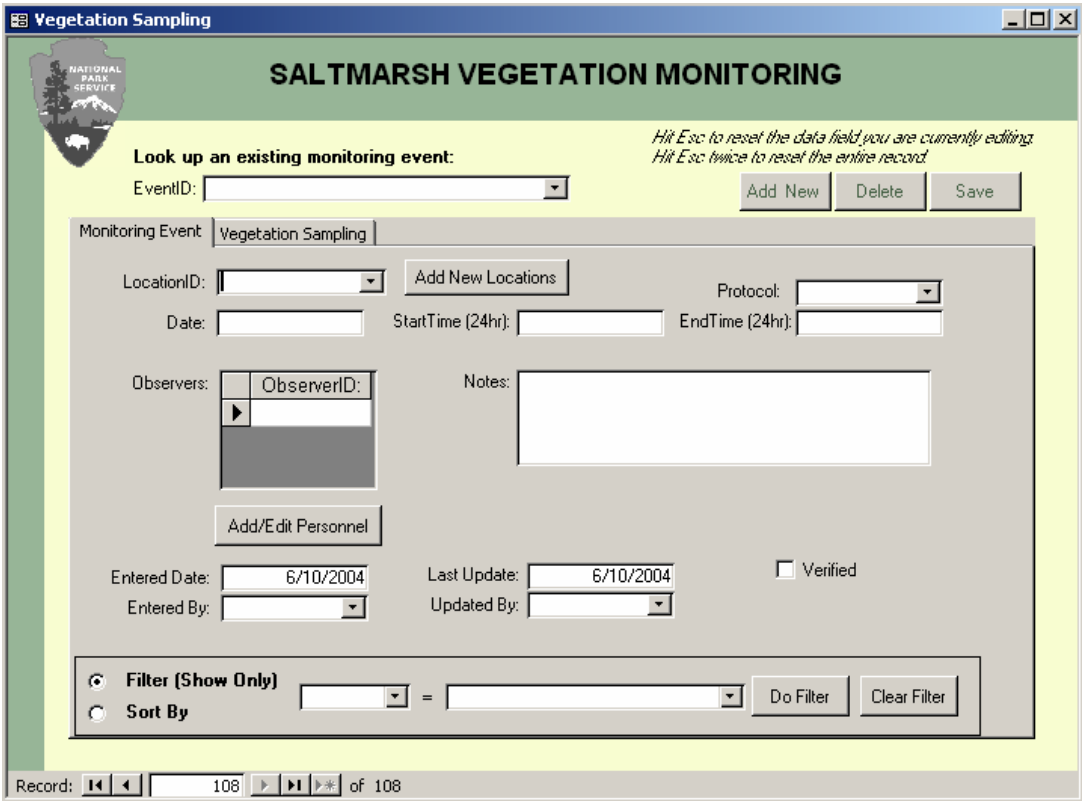
2. From the *Monitoring Data* menu, select the monitoring data you will be adding. In this example, you would select either *Vegetation Monitoring* or *Nekton Monitoring*.

3. To add data for a new event click the *Add New* button on the top right of the form. All of the data fields will now be empty.

4. Use the dropdown box to select a location that has already been entered in the database. If this is a new location that has not yet been entered in the database, click the *Add New Locations* button and enter the location information. See *Entering Monitoring Sites and Locations* section above for further instructions. It is most efficient to add all of your new sites and locations at once. Then return to enter the monitoring data.

5. Select the protocol you are using for vegetation sampling, “SMV”. If your protocol is not available from the drop-down list, you will need to contact your data manager or network coordinator, to add it to the list.

6. Enter the date you went into the field and took measurements. Be sure to start at the left when entering the date. The date is stored as MM/DD/YYYY.



7. Enter the time the sampling began and the time that the sampling ended. This can be very important for later analysis, correlating data with time of day, ambient light, tide levels, etc.

8. The database generates the EventID automatically for you. Once you have entered the necessary information (location, protocol, date, and optionally start time) the EventID will appear in the EventID lookup box in the top left of the form.

9. The observers are the field crew who did the actual measurements. By clicking in the white box under ObserverID, a drop-down list of observers will appear. Select the observer or observers who collected the data in the field. If the observers are not yet in the list, click *Add /Edit Personnel*, and add them into the database. See the section on Entering Personnel for further instructions.

10. The Notes field is optional. If there was anything unusual or interesting about this monitoring event, you can include it here. For instance, if you saw excessive amounts of debris in a channel you were sampling, or if one of your

instruments started to act oddly this would be a way to carry that information with the data.

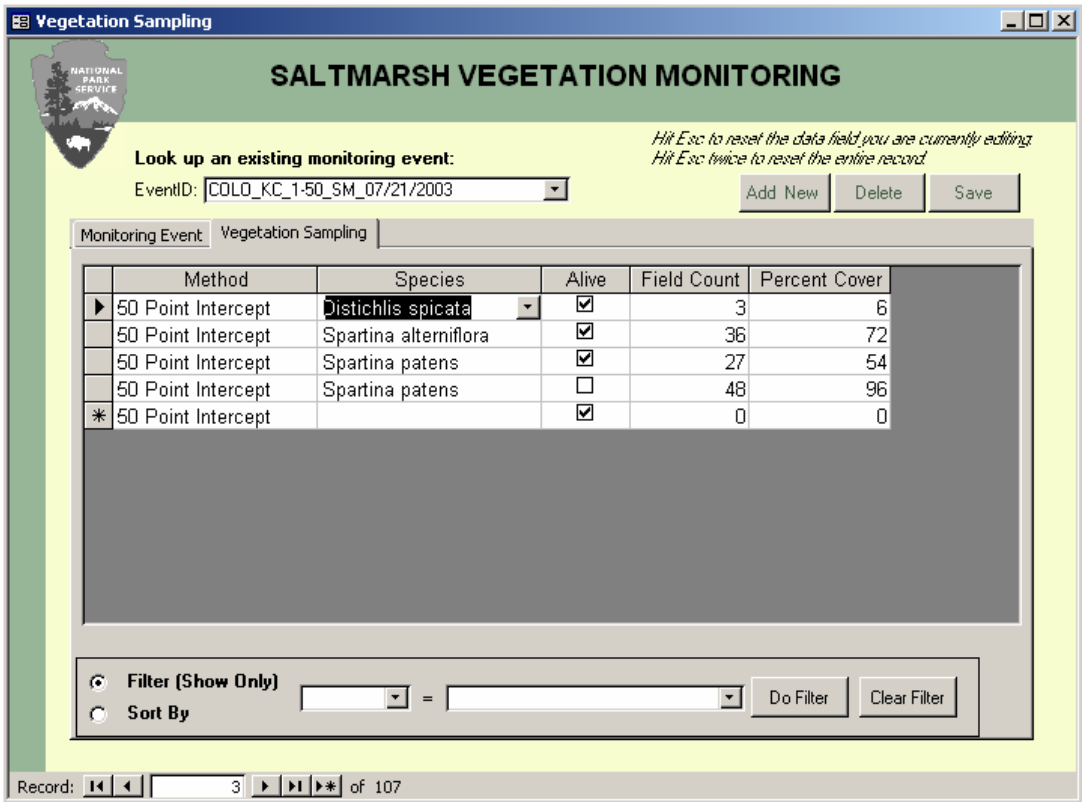
11. If you are entering this monitoring event for the first time, enter your name as Entered By. If your name is not in the list, click *Add /Edit Personnel*, and add your information to the list of personnel. See the section on *Entering Personnel* for further instructions. The entered date will default to today's date. If that is incorrect, simply enter the correct date for the Entered Date.

12. The Updated By and Last Update fields are for any edits to the monitoring event data. These boxes are set up similarly to the Entered Date and Entered By above.

13. When you have completed entering the monitoring event, click *Save* to save the record. Either click *Done* to return to the Monitoring menu, or click *Add* to continue adding new events.

B. Entering the Vegetation Data

The salt marsh monitoring database includes information collected on salt marsh vegetation using one of two methods: the 50-Point Intercept method or the Braun-Blanquet. The field data sheet for the Point Intercept method is a matrix for entering the plants at each of the points. The field sheet also includes a tally for each species encountered at that sampling location. With a 100-point intercept method, the tally is directly equal to the percent cover. With the 50-point intercept method, the tally must be doubled to equal the percent cover.



1. Click on the *Vegetation Sampling* tab.

2. Since this is a new set of vegetation sampling data, you will see only one empty record. The Method and Alive fields have default settings and are therefore not blank.

3. Select the field method used for sampling. Currently, only two methods are included in the Northeast Coastal and Barrier Network protocol, 50-Point Intercept and Braun-Blanquet. If these data were collected with the Braun-Blanquet method, select it from drop-down list

4. Select the species scientific name from the drop down list. To make it easier for users, both the scientific name and the common name are shown during the selection. If the species is not included in the list, you will need to add it to the list. See the section on *Entering Species* for further instructions.

5. The salt marsh vegetation SOP distinguishes between specimens that are alive and those that are dead. The Alive check box defaults to checked (alive). If the species sampled was dead, click on the square to display a blank white box without a check (not alive).

6. Enter the field count in the entry box. For the 50-point intercept method values should be between 0 and 50. For the Braun-Blanquet method, values should be between 0 and 7.

7. The form calculates the Percent Cover for you automatically. The percent cover for the 50-point intercept method is equal to twice the field count. For the Braun-Blanquet method, the percent cover falls within one of several percent ranges. To avoid misleading data, the percent cover is saved as -9. Later analyses will use these ranges or some value within them.

8. Click *Save* when you have completed the data from the event.

9. Add another new record by clicking *Add New*, or close the window and return to the *Monitoring Data* menu.

C. Editing vegetation monitoring events

1. Open the Saltmarsh Vegetation Monitoring form, by selecting it from the Monitoring Data menu.

2. Go to the event for this sampling data by selecting the EventID from the drop-down list at the top of the form, or by using the navigation buttons at the bottom. You may also use the Filter and Sort By tools to narrow your events. This is particularly helpful when using the navigation buttons to step to the next record.. Refer to the section on Filtering and Sorting Monitoring Data for instructions on using these tools.

3. Change the incorrect data values by reentering the monitoring event and/or species sampling data.

4. Click *Save* to save your changes.

5. When you have made the changes necessary, you can either select another record to change or close the form.

D. Deleting a monitoring event

Note: There is NO undo for this operation. Once you delete a record, it is gone, permanently!

1. From the *Monitoring Data* menu select either *Vegetation Monitoring*.

2. Select the event you would like to edit using the EventID drop-down list in the upper left of the form. The data will appear on the form in the same basic format as when you were entering brand new data.

3. Check that this event is in fact the event that you want to delete.

4. Click *Delete* in the top right of the form.

5. A dialog box will pop up to protect you from accidental deletes. Carefully check the EventID one last time. If this is the record you would like to delete, click OK. If not, start again and find the record you would like to delete.

6. Click *Done* when you have deleted the record, or you can proceed to add a new event or editing an existing event, or repeat these steps to delete another record.

E. Deleting vegetation data

1. Open the *Saltmarsh Vegetation Monitoring* form, by selecting it from the Monitoring Data menu.

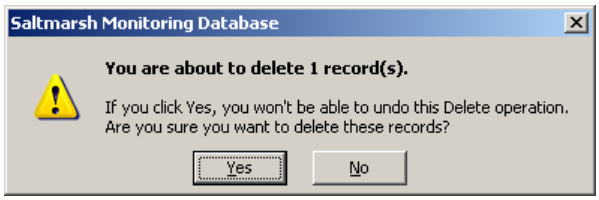
2. Go to the event for this sampling data by selecting the EventID from the drop-down list at the top of the form, or by using the navigation buttons at the bottom. You may also use the Filter and Sort By tools to narrow your events. This is particularly helpful when using the navigation buttons to step to the next record.. Refer to the section on *Filtering and Sorting Monitoring Data* for instructions on using these tools.

3. Select the *Vegetation Sampling* tab. You can do this step before or after moving to the event (step 2).

4. Highlight the row (or rows) containing the record(s) you would like to delete. If you would like to delete all of the vegetation data for this event, you should consider deleting the event. This will delete the associated vegetation data

5. Look carefully and the row on the form containing the record you selected should now display blank. Double check that this was the record you meant.

6. Choose *Delete Record* from the *Edit* menu.



7. A dialog popup will ask you if you really want to delete this record. Remember, once you delete a record, there is no undo, you will have to reenter the data from scratch. If you would like to continue with the delete, click Yes, otherwise, click No.

XI. ENTERING NEKTON MONITORING DATA

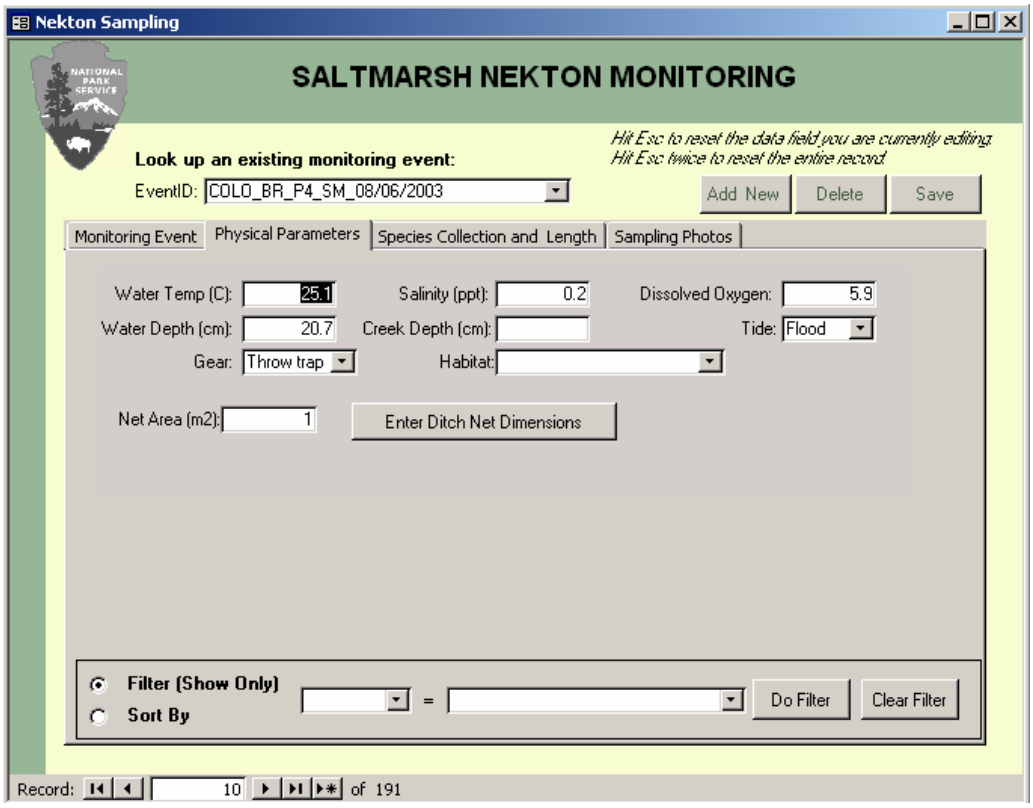
The salt marsh monitoring database also includes information collected on nektons (fish and decapods) in the ponds and channels. The nekton sampling SOP has three main categories of data. First, there are physical parameters of the collection point: water temperature, salinity, dissolved oxygen, etc. Second, nekton are collected with a net and the number of individuals of different species are recorded. Finally, the body length measured for a subset of the nekton collected.

A. Entering the Monitoring Event

Refer to the detailed instructions for entering the monitoring event parameters in the section *Entering Salt Marsh Vegetation Sampling Data*, above

B. Entering the Physical Parameters

1. After you have entered the *Monitoring Event* parameters, click on the *Physical Parameters* tab.



2. Enter the Physical Parameters associated with the nekton sampling:

   a) water temperature in Celsius,

   b) salinity in ppt,

c) dissolved oxygen,

d) water depth in centimeters for ponds, and creek depth for creeks and channels,

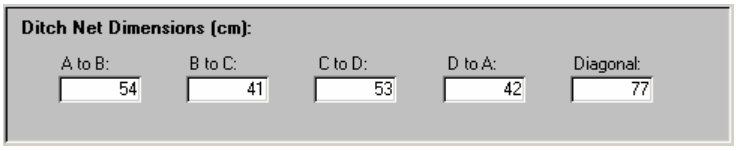
e) whether the flood was ebb or flood

f) what type of net was used to collection the nekton, either a pond net or a ditch net,

g) the type of habitat sampled. If the habitat is not listed, refer to *Entering Habitats* section for instructions on adding additional habitats to the database.

3. If a pond net was used for sampling, enter the net area, usually 1 meter.

4. If a ditch net was used, the net area must be calculated each time by entering in the sides of the net and a diagonal. For ditch nets, click the Enter Ditch Net Dimensions button. A new section for entering data will appear below the button.



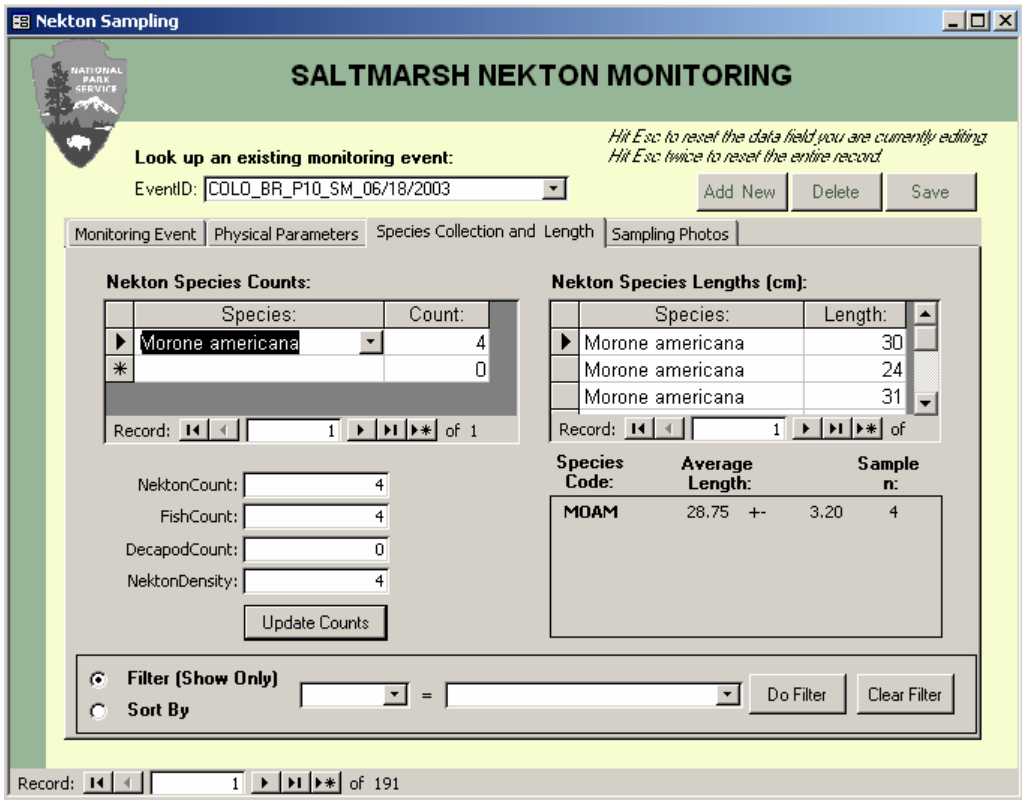
5. Enter in the four measured sides of the net and the diagonal. All measurements are in centimeters. When you have entered the data, click the Calculate Net Area button (this button has replaced the Enter Ditch Net Dimensions button). The calculated ditch net area (in square meters) will appear in the Net Area box.

6. You have finished entering the physical parameters of the collection location, now you can enter the nekton sampling data.

C. Entering the Species Collection and Lengths

1. Click on the *Species Collection and Length* tab.

2. Enter the species counts. For each different species collected, select the species from the drop-down list in the first empty row. Enter the number collected in the Count column. If your species does not appear in the drop-down list, refer to the section on *Entering Species* data.



3. When you have entered all nekton species collected, click the Update Counts button to update the nekton, fish and decapod counts as well as the nekton density.

4. Now enter the nekton lengths. For each nekton measured, select the species from the drop-down species list in the first empty row. Enter the measured length in millimeters in the length column.

5. Each time you finish an entry, the average lengths and sample size by species will automatically update.

D. Editing nekton sampling data

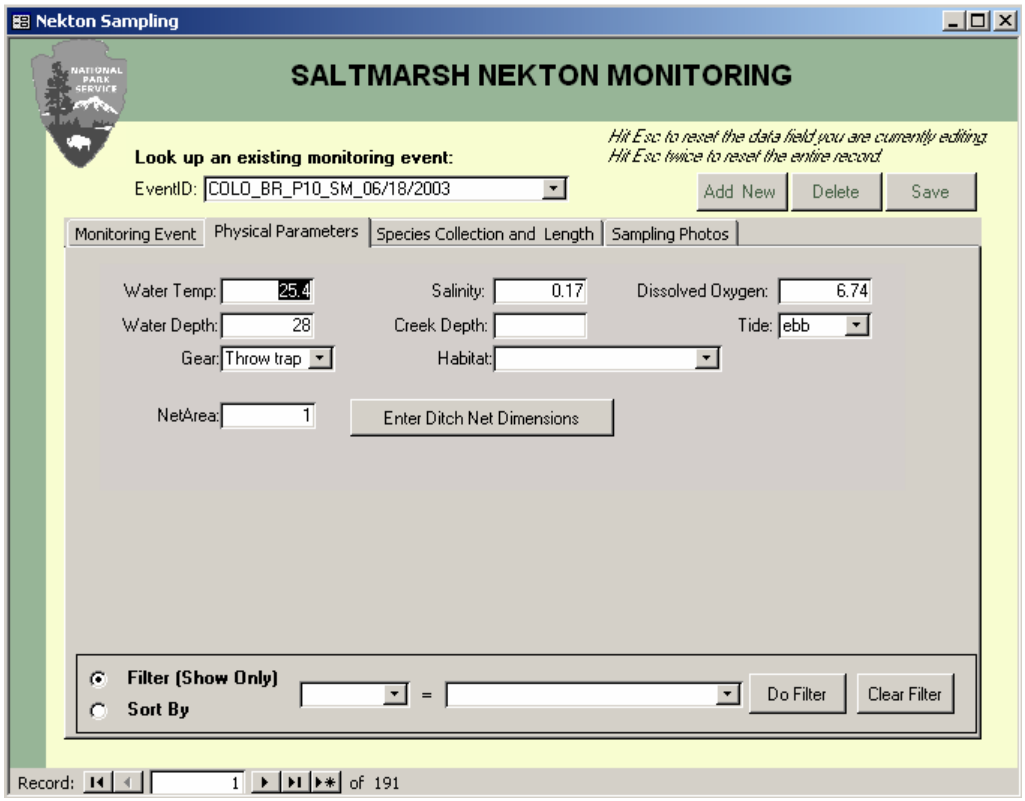
1. Select the *Nekton Monitoring* on the *Monitoring Data* menu.

2. Locate the record you want to edit. You can do this by selecting the EventID from the drop-down list at the top. If you use sort criteria at the bottom, the EventID drop-down list will display in that sort order. This may facilitate your finding the records you need. You can also set up a filter to limit the number of records to list. Refer to section J. Filtering and Sorting Monitoring Data for instructions on using these tools for finding your record. Finally you use the record navigation buttons along the bottom to move to your record.

3. Change the incorrect data values by reentering the monitoring event information, physical parameters, collection, or length. Refer to the sections above for descriptions of the form and data to be entered.

4. If you are entering data in a field and make a mistake and want to return the field to its previous value, hit the *Esc* key to clear that field. This will only work if you have not left that field, but are still actively editing it. Once you leave that field, the data is saved with the record. You can return the entire record to its previous value if you have not yet saved it.

5. If you are entering data and wish to clear the record, hit *Esc* twice to clear all of the fields. If you move to another record or close the form, the record has



been saved and you must reenter the original data if you have edited the data incorrectly.

6. When you have made the changes necessary, you can either select another record to change or close the form.

E. Deleting a Nekton Sampling Event

1. Select *Nekton Monitoring* from the *Monitoring Data* menu.

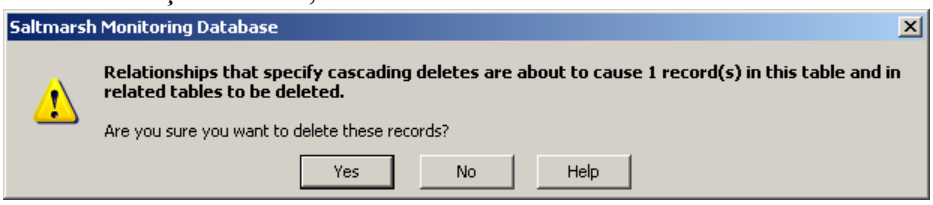
2. Locate the record you want to delete. You can do this by using the scroll bar or the record navigation buttons along the bottom. You can also do this by setting up a filter or sort. Refer to section J. Filtering and Sorting Monitoring Data for instructions on using these tools for finding your record.

3. Place your cursor in the EventID box of the record you would like to delete, and highlight the EventID.

4. Choose Select Record from the Edit menu. The Edit menu is not a part of this form, but is located along the top menu bar of the Access application. The EventID will no longer be highlighted.

5. Choose Delete from the Edit menu.

6. A dialog popup will ask you if you really want to delete this record. If you have already added numbers of nekton sampled and their lengths, the dialog popup will warn you that you are also deleting these related records. Remember, once you delete a record, there is no undo, you will have to reenter the data from scratch. If you would like to continue with the delete, click Yes, otherwise, click No.

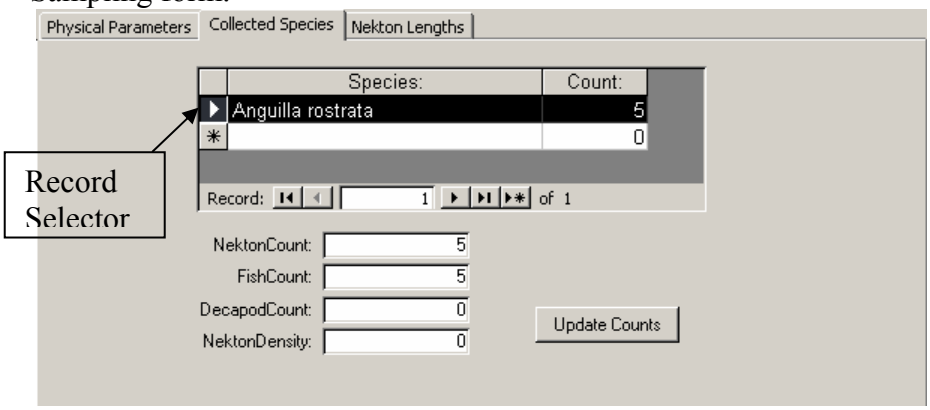


7. If you were deleting a new record, then the form will show you a new blank record. Simply step back using the record navigation buttons to find another nekton sampling event, or use the EventID drop-down box to begin entering another new record.

F. Deleting Collected Species or Nekton Length records only

1. You can delete only a line from the Collected Species tab or from the Nekton Lengths, rather than deleting the record for the entire nekton sampling event.

2. Display the Collected Species or the Nekton Lengths tab of the Nekton Sampling form.



3. Select the record you would like to delete by clicking in the small box to the left of the species name. This will highlight the entire row (species name and count or length).

4. Select *Delete* from the *Edit* menu.

5. Click the *Update Counts* button so the count data will reflect this change.

XII. FILTERING AND SORTING MONITORING DATA

The forms for editing the vegetation and the nekton sampling data include the ability to apply filters and sorts. These help organize your data. Filters and sorts can be used together or separately.

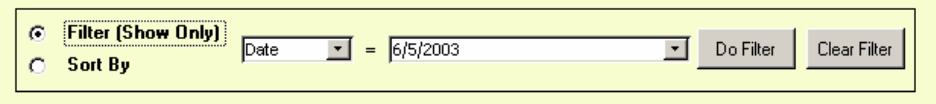
1. A sort displays the data in order based on your sort criteria. For instance, a sort using EventID lists the data in alphabetical order by their EventIDs. A sort using date will put the earliest events first, and the latest events last.

2. A filter is a way of displaying only a subset of your data. Similar to using a sort, you select a field to use for your sort, then you also select a value for that field. For instance, to apply a date filter, you would select the date field and a specific date. Then only the data collected on that day will be displayed. A filter on species will only display the data collected for one particular species.

3. Applying a filter or sort to vegetation or nekton sampling data

4. Open either the Salt Marsh Vegetation Point Intercept form or the Nekton Sampling form, by selecting Add/Edit/Search Monitoring Data from the Main Menu then selecting either data set.

5. At the bottom of both of these forms are the controls for the filter and sort functions. They are set up identically for both forms, although the filter and



sort fields differ somewhat.

6. Select either Filter (Show Only) or Sort By in the radio buttons on the left.

7. Select from the first drop-down list the field you will use for the filter or sort.

8. If you are performing a filter, a second drop-down list will be visible. Use this to select the specific value you want to include.

9. Click the Do Filter or Do Sort button (depending on which function you are performing).

10. If you would like to have both a filter and a sort running concurrently, repeat the steps above for the second function.

11. Removing a filter or sort from vegetation or nekton sampling data

12. The Salt Marsh Vegetation Point Intercept form or the Nekton Sampling form should already be open.

13. Select either Filter (Show Only) or Sort By in the radio buttons on the left, depending on which you would like to remove.

14. Click the Clear Filter or Clear Sort button, as appropriate.

15. To remove both a filter and a sort, repeat the steps above for the other function.

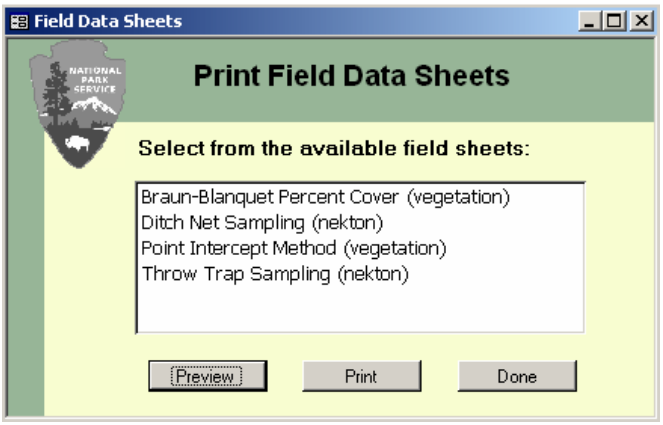
XIII. PRINTING FIELD DATA SHEETS

Blank field sheets used for the Salt Marsh Monitoring SOP have been reproduced in this database for ease of access and printing. If there are sheets that you would like which are not currently available, contact your data manager to add additional sheets.

A. Viewing a blank field data form

1. Select Print Field Data Sheets from the Main Menu.

2. Choose from the available data sheets by clicking in the small check box to the left of the sheet you are interested in.



3. When you have placed a small check to the left of the appropriate sheet, click the Preview button.

4. The field sheet will be displayed at a scale that shows the entire sheet in the window. If you would like to read the sheet more closely you can zoom in by placing your cursor (shaped as a magnifying glass) on a section to zoom into. Once you have zoomed in, your cursor becomes a zoom out tool, a magnifying glass with a "-" sign in the middle rather than a "+".

   Alternatively, you can select a specific scale by drop-down zoom box in the button bar of the Access application. This will default to "Fit", 

meaning fit to page. You can select several other levels of zoom from the list.

B. Printing a blank field data form

1. Select Print Field Data Sheets from the Main Menu.

2. Choose from the available data sheets by clicking in the small check box to the left of the sheet you are interested in.

3. When you have placed a small check to the left of the appropriate sheet, click the Print button.

4. Alternatively, you can preview a field data sheet, as described above. When you display the sheet, you can select the printer icon from the Access application button bar.

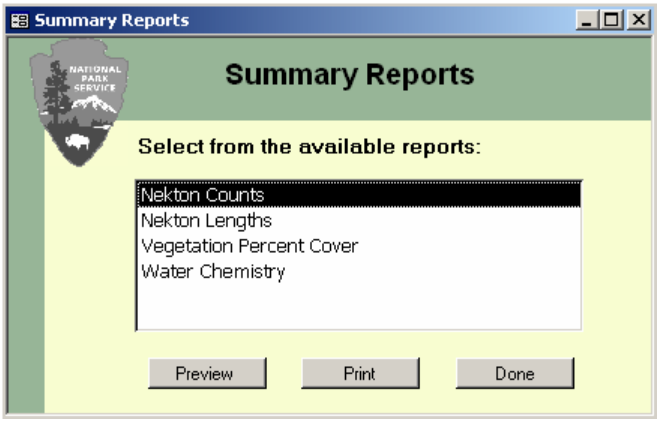
XIV. Exporting the Results

The Saltmarsh Monitoring Database provides not only a means for storing and viewing specific monitoring events, it provides two ways to summarize the findings. *Summary Reports* are created using Access query and report objects. Many researchers use analytical tools outside of Access, such as statistical packages. For these analyses, the data are exported to the Excel format, and can then be imported into a variety of other software for further analysis.

Your data manager or other database personnel will create a series of useful data reports and summary tables. These can than be selected from the menu and viewed, printed or exported. If there are reports and data tables you would like included, contact your data manager.

A. Printing Summary Reports

1. Select *Analysis and Export* from the *Main Menu*.
2. Select *Summary Reports*.



3. Review the list of reports available. Select the report you would like.
4. Preview the report by highlighting the name and clicking the *Preview* button, or by double-clicking the name.
5. Once you have reviewed the report, you can print by highlighting the name and clicking the *Print* button.
6. Click *Done* when you have finished.

B. Exporting Data to Excel Format

1. Select *Analysis and Export* from the *Main Menu*.
2. Select *Export Data to Excel*.

3. Review the list of data tables available. Select the data you would like.
4. Preview the data by highlighting the name and clicking the *Preview* button, or by double-clicking the name.
5. Once you have reviewed the report, you can export by highlighting the name and clicking the *Export* button.
6. In the *Save As* window, select the location and name of your export.
7. Once you save the file, it will automatically be opened with Excel. You can use the data there, or close Excel again and import the Excel format file to another software package.
8. Click *Done* when you have finished exporting.

XV. Template Conversion

The database includes a menu item for converting the database from NCBN Salt marsh monitoring to other monitoring protocols in this and other regions. The Template Conversion tools include tools for updating database settings, adding NPS formatting to new forms and reports, updating the list of linked tables, and for adding new items to the lists of field data sheets, summary reports and export tables. These tools are for the data manager to convert and maintain the database. Monitoring staff, contractors, and researchers will not be using these tools under most situations. Complete instructions for the Template Conversion tools are included in the SOP for Monitoring Template Conversion.